DATA EVALUATION REPORT

1. Chemical: Terbutryn

2. Test Material: 97.3% (technical ai)

3. Study Type: 48-Hour $LC_{50}$

   Species Tested: Quahog (Clam)

4. Study ID: Surprenant, D.C. (1987) Acute Toxicity of Terbutryn Technical to Embryolarvae of the Quahog Clam (Mercenaria mercenaria), Study No. BW-87-7-2451. Prepared by Springborn Life Science, Inc. for Ciba-Geigy Corporation, P.O. Box 18300, Greensboro, NC 27419. Accession Nos. 40296-601, -602, -603, -604.

5. Reviewed By: Curtis E. Laird, Fishery Biologist, EEB/HED — Signature: Curtis E. Laird — Date: 10-5-87

6. Approved By: Allen Vaughan, Supervisory Biologist, EEB/HED — Signature: Allen W. Vaughan — Date: 10.13.87

7. Conclusions:

This study indicates terbutryn is moderately toxic to Quahog with an $EC_{50}$ of 5.8 (95% CL 4.0-9.6) ppm. The no-observed-effect level was less than 1.5 ppm. This study does fulfill the requirement in support of registration for an estuarine/marine invertebrate study.

8. Recommendations: N/A

9. Background:

Submission of avian and aquatic toxicity data under 6(a)(2).

10. Discussion of Individual Test: N/A

11. Material and Methods:

a. Test Animals - Test animals were Quahog (Mercenaria mercenaria) from a commercial shellfish hatchery, Cape Cod, MA.

b. Test Design - Clams were tested in 1 liter glass beakers; temperatures were 18 to 21 °C; salinity was 32%; photoperiod was 16L/8D.

c. Dose - Static bioassay using mean measured concentrations; acetone was used as a solvent.

d. Design - 19,943 clams per dose level; five dose levels plus positive and negative control (0, acetone, 1.5, 2.1 4.2, 7.9, and 11 ppm).

e. Statistics - Linear regression.

12. Reported Results:

The study author found the 48-hour $EC_{50}$ to be 5.8 (5.7 to 5.8) ppm. The no-observed-effect level was 2.1 ppm.

13. Study Author's Conclusions:

The 48-hour $EC_{50}$ was 5.8 ppm. The raw data and final report for this study were inspected by the Quality Assurance Unit to assure compliance with the Protocol, Standard Operating Procedure and the Pertinent EPA Good Laboratory Practice Regulations. All discrepancies were reported immediately to the study director and management.

14. Reviewer's Discussion and Interpretation of Study:

a. Test Procedures - The test procedure complied with the recommended EPA Protocol of October 1982 (Part 158).

b. Statistical Analysis - The statistics were verified with Stephan's Program.

c. Discussion/Results - Terbutryn is moderately toxic to Quahog clam with $EC_{50}$ of 5.8 ppm. The no-observed-effect level was < 1.5 ppm due to a 5% mortality at the 1.5 ppm dose level.

d. Adequacy of Data

1) Category - Core

2) Rationale - N/A

3) Repairability - N/A

15. Completion of One-liner: Yes

16. CBI Appendix: N/A

Laird Terbutryn Quahog Clam 09-15-87

**********

| CONC. | NUMBER EXPOSED | NUMBER DEAD | PERCENT DEAD | BINOMIAL PROB. (PERCENT) |
|---|---|---|---|---|
| 11 | 19943 | 15156 | 75.99659 | 0 |
| 7.9 | 19943 | 10569 | 52.99604 | 0 |
| 4.2 | 19943 | 8974 | 44.99825 | 0 |
| 2.1 | 19943 | 3789 | 18.99915 | 0 |
| 1.5 | 19943 | 997 | 4.999248 | 0 |

BECAUSE THE NUMBER OF ORGANISMS USED WAS SO LARGE, THE 95 PERCENT CONFIDENCE INTERVALS CALCULATED FROM THE BINOMIAL PROBABILITY ARE UNRELIABLE. USE THE INTERVALS CALCULATED BY THE OTHER TESTS.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 6.236082

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

| SPAN | B | LC50 | 95 PERCENT CONFIDENCE LIMITS | | |
|---|---|---|---|---|---|
| 4 | 1.260364E-04 | 5.751857 | 5.701709 | 5.802853 | |

RESULTS CALCULATED USING THE PROBIT METHOD

| ITERATIONS | G | H | GOODNESS OF FIT PROBABILITY |
|---|---|---|---|
| 3 | .2437343 | 589.9688 | 0 |

A PROBABILITY OF 0 MEANS THAT IT IS LESS THAN 0.001.

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 2.255888

95 PERCENT CONFIDENCE LIMITS = 1.142169 AND 3.369608

LC50 = 5.825309

95 PERCENT CONFIDENCE LIMITS = 4.075343 AND 9.574737

LC10 = 1.593484

95 PERCENT CONFIDENCE LIMITS = .4996326 AND 2.53409

**********